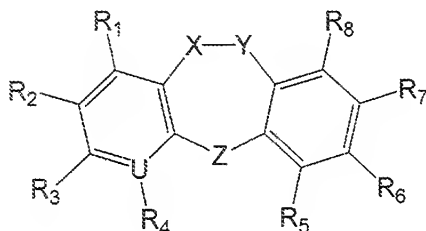


Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (previously presented) A compound represented by formula (1),



Formula 1

wherein

when the X-Y bond is a single bond, X and Y are independently selected from the group consisting of:

CW<sub>1</sub>W<sub>2</sub> wherein W<sub>1</sub> and W<sub>2</sub> are independently selected from the group consisting of one of a hydrogen atom, a halogen, a hydroxyl group, a lower alkyl group, a substituted lower alkyl group, a lower alkoxy group, a cycloalkyl group and a cycloalkenyl group,

C=O, and

C=NOW<sub>3</sub> wherein W<sub>3</sub> is a hydrogen atom or a lower alkyl group;

when the X-Y bond is a double bond, X and Y are each independently CW<sub>4</sub> wherein W<sub>4</sub> is any one of a hydrogen atom, a halogen, a hydroxyl group, a lower alkyl group, a substituted lower alkyl group, a lower alkoxy group or an acyloxy group;

Z is O;

U is C;

R<sub>1</sub> to R<sub>4</sub> are independently selected from the group consisting of a hydrogen atom, a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group, a substituted cycloalkyl group, a lower alkenyl group, a substituted lower alkenyl group, a lower alkynyl group, a substituted lower alkynyl group, a halogen, a lower alkylcarbonyl group, a substituted lower alkylcarbonyl group, a trihalomethyl group, V<sub>1</sub>W<sub>5</sub>, a nitro group, an amino group, a substituted amino group, a cyano group, an acyl group, an acylamino group, a substituted acyl group, a substituted acylamino group, an aromatic ring, a substituted aromatic ring, a heterocycle and a substituted heterocycle wherein

V<sub>1</sub> is any one of O, S, S=O or SO<sub>2</sub>,

W<sub>5</sub> is any one of a hydrogen atom, a lower alkyl group, a substituted lower alkyl group, a lower alkylcarbonyl group and a substituted lower alkylcarbonyl group, an acyloxy group or a trihalomethyl group, and

R<sub>5</sub> to R<sub>8</sub> are independently selected from the group consisting of a hydrogen atom, a lower alkyl group, a substituted lower alkyl group, a lower alkenyl group, a substituted lower alkenyl group, a lower alkynyl group, a substituted lower alkynyl group, a halogen, a lower alkylcarbonyl group, a substituted lower alkylcarbonyl group, a trihalomethyl group, V<sub>2</sub>W<sub>7</sub>, a nitro group, an amino group, a substituted amino group, an acylamino group, an aromatic ring, a substituted aromatic ring, a heterocycle and a substituted heterocycle; wherein

V<sub>2</sub> is one of O, S, S=O or SO<sub>2</sub>,

$W_7$  is one of a hydrogen atom, a lower alkyl group, a substituted lower alkyl group, a lower alkylcarbonyl group, a substituted lower alkylcarbonyl group or a trihalomethyl group,

wherein:

when X is  $CHW_0$ ,  $CW_0W_0$  or  $CW_0$  at least one of  $R_5$  to  $R_8$  is a hydroxyl group, provided that at least one of  $R_5$ ,  $R_7$  or  $R_8$  is a hydroxy group when the X-Y bond is  $CH(C_2H_5)CO$  and  $R_6$  is a hydroxyl group and

when X is other than  $CHW_0$ ,  $CW_0W_0$  or  $CW_0$  at least one of  $R_5$  to  $R_8$  is a hydroxyl group and, at the same time, at least one of the other  $R_5$  to  $R_8$  is a group of OR wherein

$W_0$  is any one selected from the group consisting of a lower alkyl group and a substituted lower alkyl group and

R is any one selected from the group consisting of a hydrogen atom, a lower alkyl group, a substituted lower alkyl group, a lower alkylcarbonyl group and a substituted lower alkylsilyl group; and

when X-Y is  $CH_2CH_2$ ,  $CHBrCH_2$ ,  $CH_2CO$ ,  $CHBrCO$ ,  $CH=CH$ ,  $CH=COCOCH_3$  or  $CH=COCH_3$ ,

at least one of  $R_1$  to  $R_4$  is an aromatic ring, a substituted aromatic ring, a heterocycle or a substituted heterocycle provided that when both  $R_6$  and  $R_7$  are hydroxyl groups, any one of  $R_1$  to  $R_4$  is not a phenyl group; or

at least one of  $R_1$  to  $R_4$  is  $SW_8$  or  $S(O)W_9$  wherein  $W_8$  and  $W_9$  independently are a lower alkyl group or a substituted lower alkyl group provided that  $R_7$  is not a hydrogen atom when Z is O; or

$R_2$  is either a lower alkyl group or a substituted lower alkyl group and, at the same time,  $R_8$  is a hydroxyl group provided that the number of carbon atoms of the lower alkyl group is 3 or more when Z is O; or

at least one of R<sub>1</sub> to R<sub>4</sub> is a lower alkylcarbonyl group provided that the number of carbon atoms of the lower alkyl group is 3 or more, a cycloalkylcarbonyl group or a cycloalkenylcarbonyl group and, at the same time, R<sub>8</sub> is a hydroxyl group; or

at least one of R<sub>1</sub> to R<sub>4</sub> is a cyano group; or

at least one of R<sub>1</sub> to R<sub>4</sub> is -C(=NOR)CH<sub>3</sub> wherein R is a hydrogen atom or a lower alkyl group, an optical isomer thereof, a conjugate thereof or a pharmaceutically acceptable salt thereof.

2. (original) The compound according to claim 1, wherein R<sub>6</sub> is a hydroxyl group.

3. (original) The compound according to claim 1, wherein R<sub>6</sub> and R<sub>7</sub> are hydroxyl groups.

4. (original) The compound according to claim 1, wherein R<sub>6</sub> and R<sub>8</sub> are hydroxyl groups.

5. (original) The compound according to claim 1, wherein R<sub>5</sub> and R<sub>6</sub> are hydroxyl groups.

6. (previously presented) The compound according to claim 1, wherein the X-Y bond is a single bond and X is CW<sub>1</sub>W<sub>2</sub> or the X-Y bond is a double bond and X is CW, wherein

at least one of W<sub>1</sub> and W<sub>2</sub> is selected from the group consisting of a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group and a cycloalkenyl group and

W is one of a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group or a cycloalkenyl group.

7. (previously presented) The compound according to claim 1, wherein Y is CO.

8. (previously presented) The compound according to claim 6, wherein the lower alkyl group is any one of a methyl group, an ethyl group, a *n*-propyl group, an isopropyl group, an *n*-butyl group, a *sec*-butyl group, an isobutyl group or a *tert*-butyl group.

9. (previously presented) The compound according to claim 1, wherein R<sub>2</sub> or R<sub>3</sub> is any one of a heterocycle, a substituted heterocycle, an aromatic ring or a substituted aromatic ring.

10. (previously presented) The compound according to claim 1, wherein the heterocycle is an aromatic heterocycle.

11. (previously presented) The compound according to claim 1, wherein R<sub>2</sub> or R<sub>3</sub> is SW<sub>8</sub> or S(O)W<sub>9</sub>, wherein

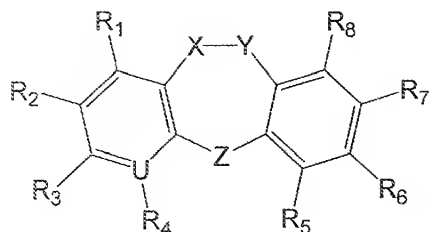
W<sub>8</sub> is a lower alkyl group or a substituted lower alkyl group, and

W<sub>9</sub> is a lower alkyl group or a substituted alkyl group.

12. (previously presented) The compound according to claim 11, wherein the lower alkyl group is any one of a methyl group, an ethyl group, a *n*-propyl group, an isopropyl group, an *n*-butyl group, a *sec*-butyl group, an isobutyl group or a *tert*-butyl group.

13-16. (canceled)

17. (currently amended) A method of preparing a compound represented by formula (1),



Formula 1

wherein

when the X-Y bond is a single bond, X and Y are independently selected from the group consisting of:

CW<sub>1</sub>W<sub>2</sub> wherein W<sub>1</sub> and W<sub>2</sub> are independently selected from the group consisting of one of a hydrogen atom, a halogen, a hydroxyl group, a lower alkyl group, a substituted lower alkyl group, a lower alkoxy group, a cycloalkyl group and a cycloalkenyl group,

C=O, and

C=NOW<sub>3</sub> wherein W<sub>3</sub> is a hydrogen atom or a lower alkyl group;

when the X-Y bond is a double bond, X and Y are each independently CW<sub>4</sub> wherein W<sub>4</sub> is any one of a hydrogen atom, a halogen, a hydroxyl group, a lower alkyl group, a substituted lower alkyl group, a lower alkoxy group or an acyloxy group;

Z is O;

U is C;

R<sub>1</sub> to R<sub>4</sub>, are independently selected from the group consisting of a hydrogen atom, a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group, a substituted cycloalkyl group, a lower alkenyl group, a substituted lower alkenyl group, a lower alkynyl group, a substituted lower alkynyl group, a halogen, a lower alkylcarbonyl group, a substituted lower alkylcarbonyl group, a trihalomethyl group, V<sub>1</sub>W<sub>5</sub>, a nitro group, an amino group, a substituted

amino group, a cyano group, an acyl group, an acylamino group, a substituted acyl group, a substituted acylamino group, an aromatic ring, a substituted aromatic ring, a heterocycle and a substituted heterocycle wherein

$V_1$  is any one of O, S, S=O or  $SO_2$ ,

$W_5$  is any one of a hydrogen atom, a lower alkyl group, a substituted lower alkyl group, a lower alkylcarbonyl group and a substituted lower alkylcarbonyl group, an acyloxy group or a trihalomethyl group, and

$R_5$  to  $R_8$  are independently selected from the group consisting of a hydrogen atom, a lower alkyl group, a substituted lower alkyl group, a lower alkenyl group, a substituted lower alkenyl group, a lower alkynyl group, a substituted lower alkynyl group, a halogen, a lower alkylcarbonyl group, a substituted lower alkylcarbonyl group, a trihalomethyl group,  $V_2W_7$ , a nitro group, an amino group, a substituted amino group, an acylamino group, an aromatic ring, a substituted aromatic ring, a heterocycle and a substituted heterocycle; wherein

$V_2$  is one of O, S, S=O or  $SO_2$ ,

$W_7$  is one of a hydrogen atom, a lower alkyl group, a substituted lower alkyl group, a lower alkylcarbonyl group, a substituted lower alkylcarbonyl group or a trihalomethyl group,

wherein:

when X is  $CHW_0$ ,  $CW_0W_0$  or  $CW_0$  at least one of  $R_5$  to  $R_8$  is a hydroxyl group, provided that at least one of  $R_5$ ,  $R_7$  or  $R_8$  is a hydroxy group when the X-Y bond is  $CH(C_2H_5)CO$  and  $R_6$  is a hydroxyl group and

when X is other than  $CHW_0$ ,  $CW_0W_0$  or  $CW_0$  at least one of  $R_5$  to  $R_8$  is a hydroxyl group and, at the same time, at least one of the other  $R_5$  to  $R_8$  is a group of OR wherein

$W_0$  is any one selected from the group consisting of a lower alkyl group and a substituted lower alkyl group and

R is any one selected from the group consisting of a hydrogen atom, a lower alkyl group, a substituted lower alkyl group, a lower alkylcarbonyl group and a substituted lower alkylsilyl group; and

when X-Y is  $\text{CH}_2\text{CH}_2$ ,  $\text{CHBrCH}_2$ ,  $\text{CH}_2\text{CO}$ ,  $\text{CHBrCO}$ ,  $\text{CH}=\text{CH}$ ,  $\text{CH}=\text{COCOCH}_3$  or  $\text{CH}=\text{COCH}_3$ ,

at least one of  $\text{R}_1$  to  $\text{R}_4$  is an aromatic ring, a substituted aromatic ring, a heterocycle or a substituted heterocycle provided that when both  $\text{R}_6$  and  $\text{R}_7$  are hydroxyl groups, any one of  $\text{R}_1$  to  $\text{R}_4$  is not a phenyl group; or

at least one of  $\text{R}_1$  to  $\text{R}_4$  is  $\text{SW}_8$  or  $\text{S(O)W}_9$  wherein  $\text{W}_8$  and  $\text{W}_9$  independently are a lower alkyl group or a substituted lower alkyl group provided that  $\text{R}_7$  is not a hydrogen atom when Z is O; or

$\text{R}_2$  is either a lower alkyl group or a substituted lower alkyl group and, at the same time,  $\text{R}_8$  is a hydroxyl group provided that the number of carbon atoms of the lower alkyl group is 3 or more when Z is O; or

at least one of  $\text{R}_1$  to  $\text{R}_4$  is a lower alkylcarbonyl group provided that the number of carbon atoms of the lower alkyl group is 3 or more, a cycloalkylcarbonyl group or a cycloalkenylcarbonyl group and, at the same time,  $\text{R}_8$  is a hydroxyl group; or

at least one of  $\text{R}_1$  to  $\text{R}_4$  is a cyano group; or

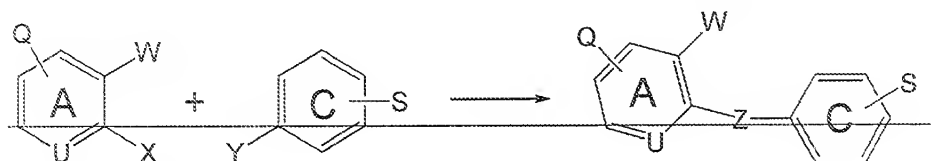
at least one of  $\text{R}_1$  to  $\text{R}_4$  is  $-\text{C}(=\text{NOR})\text{CH}_3$  wherein R is a hydrogen atom or a lower alkyl group, an optical isomer thereof, a conjugate thereof or a pharmaceutically acceptable salt thereof,

which comprises, in any order, the reaction steps of

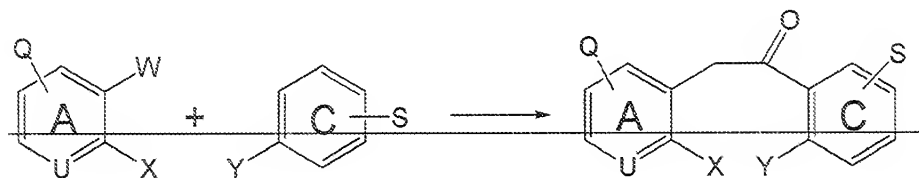
(1) bonding a ring A;



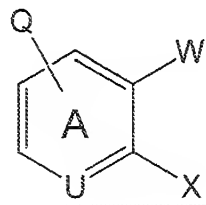
to a ring C by the Ullmann reaction as shown in formula 2 and (2) bonding a ring A to a ring C by the Friedel-Crafts reaction or photoreaction as shown in formula 3;



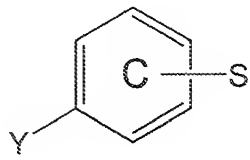
Formula 2



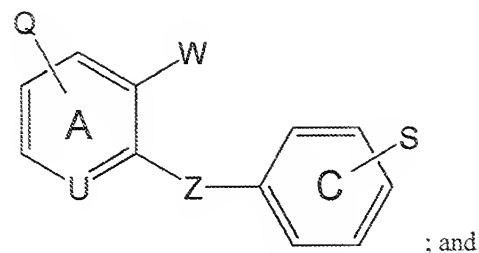
Formula 3



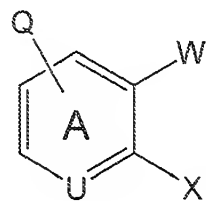
to a ring C:



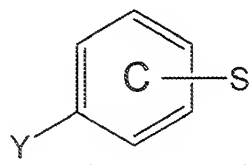
by the Ullman reaction to obtain a compound of the formula:



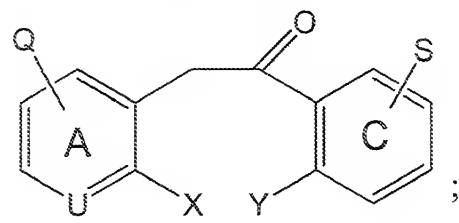
(2) bonding a ring A:



to a ring C:



by the Friedel-Crafts reaction or photoreaction to obtain a compound of the formula:



wherein

Q, S and W are each any substituent;

U is C;

one of X and Y is a leaving group and the other is a nucleophilic group; and

Z is O.

18. (previously presented) The method according to claim 17 further comprising at least one of a carbon atom increasing reaction, a conversion reaction of a substituent, an introduction reaction of a substituent, a removal of the protection of a substituent, forming a salt, and performing optical resolution.

19. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 1 and a pharmaceutically acceptable carrier or diluent.

20. (previously presented) The pharmaceutical composition according to claim 19 wherein the pharmaceutical composition utilizes the tracheal smooth muscles relaxing action of the compound.

21. (previously presented) The pharmaceutical composition according to claim 19 wherein the pharmaceutical composition utilizes the inhibitory effect on airway hypersensitivity of the compound.

22. (previously presented) The pharmaceutical composition according to claim 19 wherein the pharmaceutical composition utilizes the inhibitory effect on inflammatory cells infiltration of the compound.

23. (previously presented) The pharmaceutical composition according to claim 19 wherein the pharmaceutical composition is used as the anti-asthmatic drug.

24 –25. (canceled)

26. (previously presented) The compound of claim 1 wherein X and Y are the same.

27. (previously presented) The compound of claim 1 wherein X and Y are different.

28. (previously presented) The compound of claim 1 wherein  $W_1$  and  $W_2$  are the same.

29. (previously presented) The compound of claim 1 wherein  $W_1$  and  $W_2$  are different.

30. (previously presented) The compound of claim 1 wherein  $R_1$  to  $R_4$  are the same.

31. (previously presented) The compound of claim 1 wherein  $R_1$  to  $R_4$  are different.

32. (previously presented) The compound of claim 1 wherein  $R_5$  to  $R_8$  are the same.

33. (previously presented) The compound of claim 1 wherein  $R_5$  to  $R_8$  are different.

34. (previously presented) The compound according to claim 2, wherein the X-Y bond is a single bond and X is  $CW_1W_2$  or the X-Y bond is a double bond and X is CW, wherein  
at least one of  $W_1$  and  $W_2$  is selected from the group consisting of a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group and a cycloalkenyl group and  
W is one of a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group or a cycloalkenyl group.

35. (previously presented) The compound according to claim 3, wherein the X-Y bond is a single bond and X is  $CW_1W_2$  or the X-Y bond is a double bond and X is CW, wherein

at least one of  $W_1$  and  $W_2$  is selected from the group consisting of a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group and a cycloalkenyl group and

$W$  is one of a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group or a cycloalkenyl group.

36. (previously presented) The compound according to claim 4, wherein the X-Y bond is a single bond and X is  $CW_1W_2$  or the X-Y bond is a double bond and X is  $CW$ , wherein

at least one of  $W_1$  and  $W_2$  is selected from the group consisting of a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group and a cycloalkenyl group and

$W$  is one of a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group or a cycloalkenyl group.

37. (previously presented) The compound according to claim 5, wherein the X-Y bond is a single bond and X is  $CW_1W_2$  or the X-Y bond is a double bond and X is  $CW$ , wherein

at least one of  $W_1$  and  $W_2$  is selected from the group consisting of a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group and a cycloalkenyl group and

$W$  is one of a lower alkyl group, a substituted lower alkyl group, a cycloalkyl group or a cycloalkenyl group.

38. (previously presented) The compound according to claim 2, wherein Y is CO.

39. (previously presented) The compound according to claim 3, wherein Y is CO.

40. (previously presented) The compound according to claim 4, wherein Y is CO.

41. (previously presented) The compound according to claim 5, wherein Y is CO.

42. (previously presented) The compound according to claim 6, wherein Y is CO.

43. (previously presented) The compound according to claim 1, wherein the lower alkyl group is any one of a methyl group, an ethyl group, a *n*-propyl group, an isopropyl group, an *n*-butyl group, a *sec*-butyl group, an isobutyl group or a *tert*-butyl group.

44. (previously presented) The compound according to claim 2, wherein the lower alkyl group is any one of a methyl group, an ethyl group, a *n*-propyl group, an isopropyl group, an *n*-butyl group, a *sec*-butyl group, an isobutyl group or a *tert*-butyl group.

45. (previously presented) The compound according to claim 3, wherein the lower alkyl group is any one of a methyl group, an ethyl group, a *n*-propyl group, an isopropyl group, an *n*-butyl group, a *sec*-butyl group, an isobutyl group or a *tert*-butyl group.

46. (previously presented) The compound according to claim 4, wherein the lower alkyl group is any one of a methyl group, an ethyl group, a *n*-propyl group, an isopropyl group, an *n*-butyl group, a *sec*-butyl group, an isobutyl group or a *tert*-butyl group.

47. (previously presented) The compound according to claim 5, wherein the lower alkyl group is any one of a methyl group, an ethyl group, a *n*-propyl group, an isopropyl group, an *n*-butyl group, a *sec*-butyl group, an isobutyl group or a *tert*-butyl group.

48. (previously presented) The compound according to claim 6, wherein the lower alkyl group is any one of a methyl group, an ethyl group, a *n*-propyl group, an isopropyl group, an *n*-butyl group, a *sec*-butyl group, an isobutyl group or a *tert*-butyl group.

49. (previously presented) The compound according to claim 2, wherein R<sub>2</sub> or R<sub>3</sub> is any one of a heterocycle, a substituted heterocycle, an aromatic ring or a substituted aromatic ring.

50. (previously presented) The compound according to claim 3, wherein R<sub>2</sub> or R<sub>3</sub> is any one of a heterocycle, a substituted heterocycle, an aromatic ring or a substituted aromatic ring.

51. (previously presented) The compound according to claim 4, wherein R<sub>2</sub> or R<sub>3</sub> is any one of a heterocycle, a substituted heterocycle, an aromatic ring or a substituted aromatic ring.

52. (previously presented) The compound according to claim 5, wherein R<sub>2</sub> or R<sub>3</sub> is any one of a heterocycle, a substituted heterocycle, an aromatic ring or a substituted aromatic ring.

53. (previously presented) The compound according to claim 2, wherein R<sub>2</sub> or R<sub>3</sub> is SW<sub>8</sub> or S(O)W<sub>9</sub>, wherein

W<sub>8</sub> is a lower alkyl group or a substituted lower alkyl group, and

W<sub>9</sub> is a lower alkyl group or a substituted alkyl group.

54. (previously presented) The compound according to claim 3, wherein R<sub>2</sub> or R<sub>3</sub> is SW<sub>8</sub> or S(O)W<sub>9</sub>, wherein

W<sub>8</sub> is a lower alkyl group or a substituted lower alkyl group, and

W<sub>9</sub> is a lower alkyl group or a substituted alkyl group.

55. (previously presented) The compound according to claim 4, wherein R<sub>2</sub> or R<sub>3</sub> is SW<sub>8</sub> or S(O)W<sub>9</sub>, wherein

W<sub>8</sub> is a lower alkyl group or a substituted lower alkyl group, and

W<sub>9</sub> is a lower alkyl group or a substituted alkyl group.

56. (previously presented) The compound according to claim 5, wherein R<sub>2</sub> or R<sub>3</sub> is SW<sub>8</sub> or S(O)W<sub>9</sub>, wherein

W<sub>8</sub> is a lower alkyl group or a substituted lower alkyl group, and

W<sub>9</sub> is a lower alkyl group or a substituted alkyl group.

57. (previously presented) The compound according to claim 56, wherein the lower alkyl group is an one of a methyl group, an ethyl group, a *n*-propyl group, an isopropyl group, an *n*-butyl group, a *sec*-butyl group, an isobutyl group, or a *tert*-butyl group.

58. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 2 and a pharmaceutically acceptable carrier or diluent.

59. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 3 and a pharmaceutically acceptable carrier or diluent.

60. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 4 and a pharmaceutically acceptable carrier or diluent.

61. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 5 and a pharmaceutically acceptable carrier or diluent.

62. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 6 and a pharmaceutically acceptable carrier or diluent.

63. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 7 and a pharmaceutically acceptable carrier or diluent.

64. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 8 and a pharmaceutically acceptable carrier or diluent.

65. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 9 and a pharmaceutically acceptable carrier or diluent.



66. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 10 and a pharmaceutically acceptable carrier or diluent.

67. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 11 and a pharmaceutically acceptable carrier or diluent.

68. (previously presented) A pharmaceutical composition comprising an effective amount of the compound of claim 12 and a pharmaceutically acceptable carrier or diluent.